



**AALBORG UNIVERSITY**  
DENMARK

**Aalborg Universitet**

## **The Aalborg Model**

*a practitioner's experience with problem-based learning*

Möller, Bernd

*Publication date:*  
2007

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*  
Möller, B. (2007). The Aalborg Model: a practitioner's experience with problem-based learning.

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

### **Take down policy**

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.

# The Aalborg Model – a practitioner's experience with problem-based learning

Bernd Möller, Ph.D.  
Associate Professor  
Department of Development and Planning  
Aalborg University  
Denmark

## Reasons to go PBL (Enemark, Kolmos & Moesby, 2006)

Universities' shift to PBL was caused by similar wishes:

- To decrease drop-out rates
- To promote motivation for learning
- To create new institutional profiles
- To develop new competences
- To develop lifelong learning

Based on an incomplete, world-wide survey of the reasons why universities and other educational institutions did implement PBL

## About Aalborg University (AAU)

- Follows new paths within research and education
- Cooperates with the surrounding world at local, national and international levels
- Is one of the leading universities in interdisciplinary, problem-oriented research and education
- Offers more than 60 different study programmes, has close to 14,000 students, 2,000 members of staff and an annual turnover of 130 GBP
- Has a high share of international students (12.5%)





(GoogleMaps)

## AAU's academic profile

- Research and research-based higher education at the highest international, academic level.
- Education at Bachelors, Master's and Ph.D. levels as well as continuing education.
- Tradition and innovation:
  - classic academic tradition, university domain
  - professions-oriented tradition, industrial domain

## A bit of history

- Fostered by the 1960's debate on bringing higher education to larger parts of society
- Founded 1974 to combat regional "brain drain", as most students went to Copenhagen and Aarhus
- PBL put into practice since 1974
- Fought its early image as "non-academic" and "rural"
- The 1990's have seen great expansion to new campuses
- AAU is a founding member of the European

# Research and education dedicated to PBL

- Part of UCPBL Centre for Problem Based Learning
- Hosts the UNESCO Chair in Problem Based Learning
- VIOL (TEO) research group, main research fields:
  - Theory of science
  - Engineering education
  - Organisational learning
- MPBL, Master in Problem Based Learning in Engineering and Science ([www.mpbl.aau.dk](http://www.mpbl.aau.dk))



## How I became a PBL practitioner

- Engineering degree in energy systems and technology, UoAS Flensburg, Germany 1996
- Made first experiences with the Aalborg model as a teacher during Ph.D. studies 1997 - 2000
- Followed mandatory programme in university pedagogy as Assistant Professor 2001 - 2005
- Developed learning environments for applied geoinformatics (GIS) within environmental management and geography
- Associate Professor since 2006, member of the planning group for the B.Sc.-programme in Geography

## The "Aalborg Model"

- AAU's trademark is the unique pedagogic model
- Project-organized, Problem-based learning (P-PBL)
- Learning revolves around complex real-life problems or issues while students work together in groups
- A continuing development of teaching methods and teachers' pedagogical qualifications is emphasized
- AAU incessantly adapts content and structure of the educational programmes to demands from

## A few single good things about the Aalborg model

- By working together students handle a project which exceeds the achievements of a single person
- A group's project brings a deeper and broader understanding of the complex of problems
- The other group members are used as a sounding board or panel of referees, offering another perspective on a given problem
- Students learn early on to communicate their own ideas in speech and writing

## ...and a few bad things

- The learned is difficult to evaluate “objectively”, even more than in classic teaching (individual vs. group)
- Freewheelers, unless eradicated by the group, can enter B.Sc. Level with few efforts
- Fewer book courses may result in candidates’ inferior knowledge within the classical sciences
- Resource intensity is proportional with no. of students, which is often contradicting funding

# So how does it work?





## The student perspective

- Students form groups (3-7) for the duration of each semester
- Groups form on the basis of shared academic interest and decide the topic of the project
- Each group moves into a group room
- Student groups get assigned a "supervisor", a faculty staff member
- The students themselves find a project to work with
- Seminars and classroom teaching are reduced by 50%



## Structure of a semester project

Approximate  
time in semester

Typical occupation  
of a student group

Week 1-2

Week 2-5

Week 5-12  
papers

Week 10-18

Week 20-24  
examination

Problem identification, literature

Problem analysis and formulation

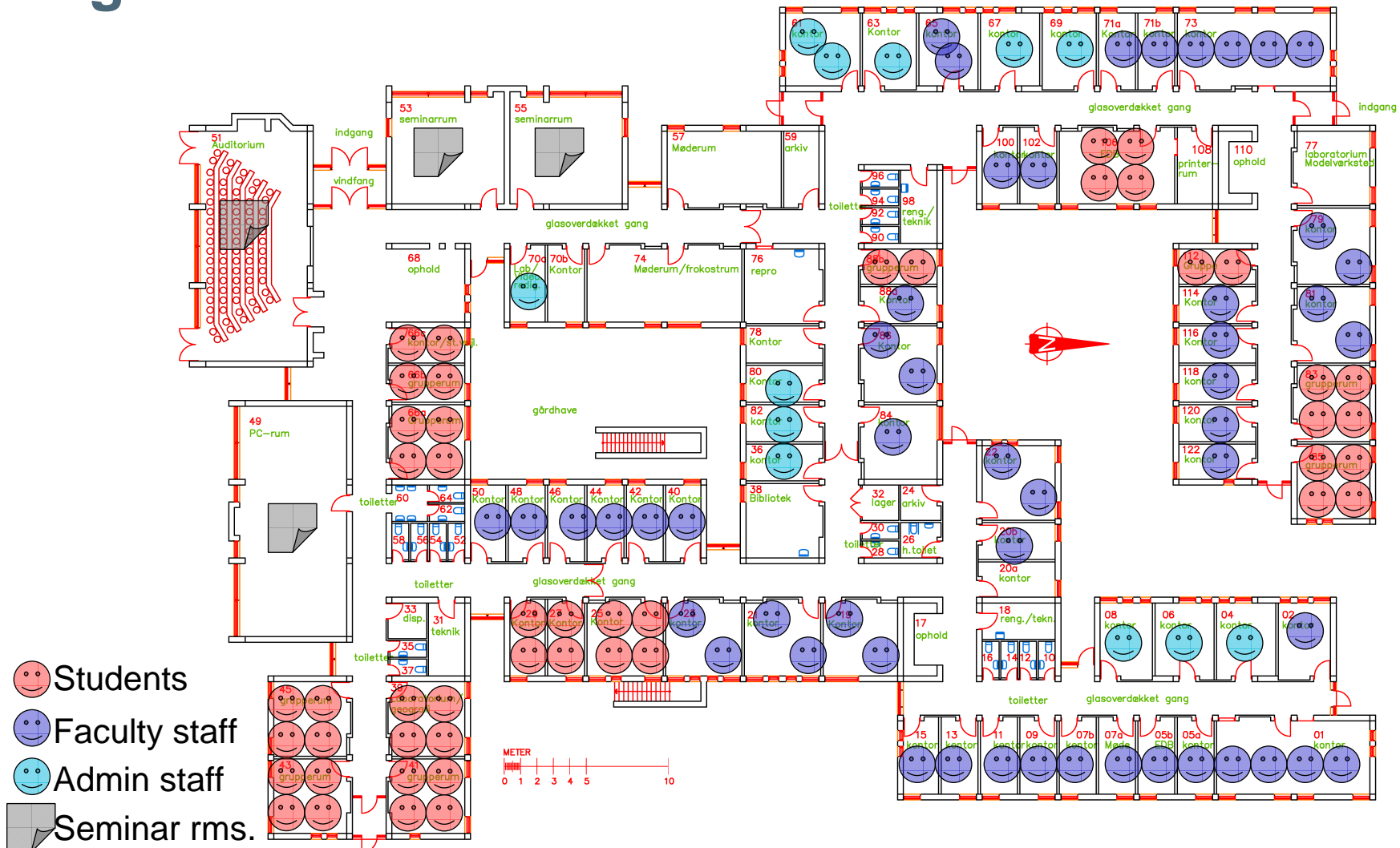
Analysis, discussion and work

Contd. analysis, report writing

Report submission,

Supervisor meetings every 1-2 weeks, on demand

# Learning in proximity: staff & students are neighbours



## Supervisor – student relations

- A supervisor engages, inspires, teaches and backs up
- A supervisor is:
  - A consultant for the student group
  - A senior colleague or resource person
  - Of course also an examiner
- A supervisor is not:
  - A teacher in the classic sense
  - A dictator
  - A project hijacker

## P-PBL and group work is different in many ways!

- *Very demanding* in the first weeks:
  - No clear assignments, organisation, structure
  - Lots of talking, no writing progress it seems
  - Conflicts among students and with supervisors
- *Very rewarding* later on:
  - Personal skills acquired
  - Teamwork and co-operation since day one
  - Facilitates building of professional networks

## P-PBL from a teacher's perspective

- It is demanding but rewarding!
  - There is no such thing as “a day at the office”!
  - Sometimes great things happen
- Supervision is all but a routine
  - Requires constant development
  - There is no script for project work
- Dialogue rather than one-way communication
  - Student and teacher partnership
  - Open discussion and room for conflicts

## Pedagogical tools

- Compulsory 2-year pedagogical education for all assistant professors in PBL
  - Courses and seminars
  - Supervision (PBL studies are PBL-based)
  - Development of portfolios
- PUC: pedagogical education centre
- Networks of colleagues
- Evaluation and student feedback



## What characterises our graduates?

- Interactive, communicative and adaptive workers
- Ability to work in a professional environment
- Workplace experience from internships and industry-related semester projects
- They finish studies in time!
- Less classic knowledge than operative knowledge
- Poorer knowledge of basic science: maths, physics etc.

# Our international M.Sc. programmes

Environmental Management

[www.environmentalmanagement.aau.dk/](http://www.environmentalmanagement.aau.dk/)

Sustainable Energy Planning & Management

[www.energyplanning.aau.dk/](http://www.energyplanning.aau.dk/)

Joint European Master in Environmental Studies (joint degree)

[www.tuhh.de/jemes/](http://www.tuhh.de/jemes/)

Urban Planning and Management

[www.urban.aau.dk/](http://www.urban.aau.dk/)

Problem Based Learning in Engineering and Science

[www.mpbl.aau.dk/](http://www.mpbl.aau.dk/)